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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,910	01/30/2004	Hiroshi Yamane	8003-1016-1	5695
<small>465</small> YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			<small>7590</small> EXAMINER KERNS, KEVIN P	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 07/15/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/766,910

**Applicant(s)**

YAMANE ET AL.

**Examiner**

Kevin P. Kerns

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 15 and 17-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 15 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/714,161.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 22 and 23 are objected to because of the following informalities: in claim 22, last two lines on page 7 of the amendment, insert "a" before "phase" and insert "is" after "adjacent coil" in these last two lines, respectively, for clarity. In claim 23, last two lines of the claim on page 9 of the amendment, replace "inducing" with "induce" and delete "of" after "direction" in these last two lines, respectively, for clarity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5, 15, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 6-182518.

As to claims 1 and 4, JP '518 discloses an apparatus for continuous casting of molten metal, in which the apparatus comprises electromagnets each comprising an iron core and coil wound over the iron core, being arranged in a facing relation on opposite sides of the mold along the transverse width, and means capable to supply AC current to each coil. The iron core is comprised of comb-shaped iron core having comb-teeth. JP '518 also discloses a coil with DC current and a coil for AC current (abstract). JP '518's apparatus is capable and of generating a single phase AC current, such that a single-phase means using one pair of poles, whereas a two-phase means using two pairs of poles, and a three-phase means using three pairs of poles to generate AC current. Therefore, since JP '518 discloses using a three-phase AC current, the apparatus is capable of generating a single phase AC current by not utilizing the other two pairs. Thus, the amended claims do not define over the disclosure of JP '518. Furthermore, since JP '518's core is arranged the same way as applicants' invention, the phase difference would inherently be of 0 or 180 degrees.

JP '518 fails to teach that the single phase AC current power supply is structurally configured to supply a single phase.

However, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the three-phase AC current power supply means of JP '518 to have a single phase means depending on the design expediency.

If the continuous casting apparatus does not require a three-phase means, then constructing a single phase means is merely a design choice and would likely reduce costs due to its simpler construction.

As to claim 2 and 3, JP '518 discloses both AC and DC current are wound on the same core.

As to claim 5, the poles are arranged above the ejection port.

As to claims 15 and 17-21, the AC current of JP '518 is capable of generating a single phase and continuous.

#### ***Allowable Subject Matter***

5. Claims 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

6. The examiner acknowledges the applicants' amendment received by the USPTO on April 21, 2008. The amendments overcome prior objections to the specification and claims, but raise objections to new claims 22 and 23 (see above section 1). The applicants have added new claims 22 and 23, which are indicated as allowable subject matter in above section 5, but are also objected to (see above section 1). Claims 1-5, 15, and 17-23 are currently under consideration in the application.

7. Applicants' arguments with respect to rejected claims 1-5, 15, and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

With regard to the applicants' remarks/arguments addressing structural limitations versus "capable of" functions, it is noted that the examiner has replaced the prior 35 USC 102(b) rejections with corresponding 35 USC 103(a) rejections, and the applicants are referred to the newly underlined portions of the above 35 USC 103(a) rejections that reflect the new grounds of rejection that were necessitated by the applicants' amendments to independent claims 1 and 4.

### ***Conclusion***

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
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July 3, 2008